CHAPTER 4. LEADERSHIP AND FIRE MANAGEMENT

Leadership is discussed in two senses in this study: "the group of leaders" and "the act of leading people." This chapter discusses goals related to the leadership or management of fire programs that were not covered under organizational culture. Leadership training is discussed in the next chapter.

We define wildland fire leadership here as all ranks above squad boss, including crew supervisors, division supervisors, operations section chiefs, other Incident Management Team members, Incident Commanders, fire management officers, Agency Administrators, and fire directors.

The act of leadership has been defined in several ways:

> *Leadership* is the process of influencing individual and group motivation.[1]
>
> *Leadership* is the activity of influencing people to strive willingly for a group of objectives.
>
> *Leadership* is then interpersonal influence exercised in a situation and directed through the communication process, toward the attainment of a specialized goal or goals.[2]

One fire leader described leadership as "getting people to do the right thing."

An organization's culture is determined in many ways by its leadership, and the leadership is in turn shaped by the culture. The leadership of the Federal natural resource agencies must set the tone for safety by example and by emphasizing safety policy. The leaders must have the training and experience to influence people's behavior, make appropriate decisions and to function effectively under stress. Leaders must provide a professional role model of what can be attained through training and experience.

---

[1] James Higgins, and Julian W Vincze, *Strategic Management – Text and Cases*, 5th Ed., Harcourt Brace Jovanovich College Publishers, 1993.
[2] Paul Hersey and K. Blanchard, *Management of Organizational Behavior - Utilizing Human Resources*, 5th Ed., Prentice Hall, 1988.

A critical function of leadership is the creation, management and sometimes the destruction of organizational culture.[3] To change firefighter safety culture will require the leadership in each of the five agencies to be involved and support the change, if the agencies are to influence the behavior of firefighters and their safety.

The leadership issues discussed in this chapter cover a wide range of topics, including fire management policy, proper use of crews, strategy and tactics, leadership experience, competency requirements, briefings and plans, accountability, and crisis leadership. Some of these issues could have been put in the chapters on organizational culture or human factors. Many of the goals are highly interrelated. The overriding principle here is assuming that leadership is well-qualified and well-trained.

Fire Management Policy

Agency fire management policy bears directly on the safety of firefighters. Some of the greatest dangers to firefighters arise from inadequate or unclear policy, and especially the lack of consistent implementation of policy. Some policies are not well-distributed and are not well-known or well-understood. The adoption of a policy change does not mean that all will start abiding by it without there being provision for its widespread and clear communication.

Observations from the field suggest that there also may be a growing dissociation between firefighters, Incident Management Team and agency safety policy; what happens at the grassroots level may not be consistent with policy, e.g., on firefighting involving structures, or on safety practices, as will be discussed further.

Resource Allocation – Several senior wildland fire managers we interviewed felt that there was a need to improve on strategic resource allocation decisions during busy fire seasons. Agency fire managers must determine priorities among fires when resources are heavily committed and in short supply. These decisions can directly impact firefighter safety.

Some fire managers suggested a flexible decision-making approach, incorporating fire behavior and growth prediction models as is done today, but allowing managers more freedom to revise priorities. This flexibility would include the ability to decide whether an agency would continue suppression efforts on a given fire, or not initiate suppression action at all. In addition,

[3] Edgar H. Schein, *Organizational Culture and Leadership* 2nd Ed., San Francisco, Jossey-Bass, 1992.

Phase I participants raised the concern that fire suppression strategy and control objectives too often assume that the tactical resources that have been ordered will be available, though in reality, they may not arrive, or may arrive much later than desired. When representatives of the Incident Management Team continue to pursue strategies that require more resources than are available, what initially may appear to be a reasonable strategy or tactic can become a dangerous one. Some senior managers commented that there was adequate flexibility in current policy, but that the flexibility might not be understood, believed, or used; i.e., there was inadequate communication, poor performance, or both.

Additionally, the cadre of resources available for firefighting include personnel for whom fire is a secondary, not primary, responsibility. This "militia" is a mainstay of the firefighting program, trained and ready to be used. However, with general decreases in bureau budgets, the cadre of wildland fire militia is shrinking. Those remaining are not always permitted to take (or do not accept) fire assignments because there is no backup for their primary work responsibilities.

At a national level, decreased funding and resources, and rising costs mean that the expectations of the public, congress, and Agency Administrators must be adapted to reflect changes in budget allocations and resources.

Policy Disagreements – Some respondents felt that disagreements over policy, priorities, strategy and tactics among multiple Federal and state agencies can be a safety problem, such as when two or more agencies clash over decisions to protect residential structures at the expense of natural resources. Frequently, firefighters and the Incident Management Team are heard to question the sense in putting firefighters at risk to stop a fire from burning low value resources or a fire that might actually be doing some ecological good, or because of civilians who build in harm's way either knowingly or unknowingly. A relatively small number of people raised these issues, but they are known to have been the root of some high profile, controversial strategic and tactical decisions.

Some firefighters unhappy with the state of safety on the fireline are formulating ad hoc safety policy, often right on the fireline. One Hot shot crew may have a different version of what is safe and sane from another Hot shot crew. Unfortunately, some informal approaches to fireline safety policy and confusion about safety policy are associated with tragic fireline incidents.

Some firefighters report that they are asked to implement tactics that unnecessarily endanger them. Participants in Phase I spoke of times when public pressure, the value of homes or property or a "gung-ho" attitude placed them at greater risk, even though agency policies place firefighter safety above the conservation of resources and values to be protected. Firefighting is inherently dangerous and it is hard to draw a solid line between "normal" danger and "excessive" danger. Firefighters observe that they willingly take more risks to protect homes or ecologically valuable lands, sometimes to their own detriment, and this motivation is recognized and sometimes exploited by the Incident Management Team.

Wildland-Urban Interface – Survey respondents said the need to improve Federal policy relating to the wildland-urban interface was one of their strongest concerns. Current Federal policy prevents Federal wildland firefighters from engaging in interior structural fire suppression when wildland fires extend into the residential environment or "interface." Federal wildland firefighters do not have the equipment, training, or mandate to extinguish structure fires resulting from extension of the wildland fire, though they can try to stop the fire from reaching structures, and do limited extinguishment from outside the structure. Federal policy recognizes firefighting within structures as a responsibility of local government, with the exception of structures in national parks. However, the wildland-urban population is growing rapidly, and wildland firefighters more and more often find themselves in the interface environment, providing "structure protection" or keeping the wildland fire from reaching the structures.

The above findings led to Goals 30 through 33.

Goal 30. Set firefighting goals commensurate with available resources.

Implementation Strategy 1 – Use the "Wildland Fire Situation Analysis" approach or others to evaluate fire control strategies and select the best commensurate with available resources.

The agencies have built the ability to re-evaluate fire control objectives and strategies in light of resource shortages into the new Wildland Fire Situation Analysis (WFSA) document, which is used by Agency Administrators to evaluate alternative fire control strategies. Policy mandates that the WFSA be used as a step in the process of deciding on a strategy. The issue is to use it well, and follow through.

The agencies should work with the NWCG to appoint an interagency task group to evaluate the influence of the WFSA on firefighter safety. The task group should evaluate the WFSA approach and the materials used to provide training and support on it to ensure that

Agency Administrators use the WFSA well, and adequately provide for firefighter safety when they evaluate fire control alternatives. Feedback in the form of examples or case studies should be sought to reinforce the concept embodied in this goal.

Implementation Strategy 2 – Encourage regional and national fire managers to be more flexible and to revise priorities in real time during a season, when necessary.

Some priorities are set by predetermined national policy ("when we are at this mobilization level we do that"). This can lead to some fires being fought that could have been let go. Also, some fires that are fought are not given high national priority, and hence not enough resources. The agencies' policies generally do allow regional and national fire managers freedom to re-evaluate and revise fire control priorities, on a fire by fire basis, but the flexibility may not always be understood or exercised. The flexibility in decision-making should include the ability to decide whether to continue or discontinue suppression efforts on a given fire, or not initiate suppression action at all. The strategy here is to make sure that fire managers understand the envelope of practice they have, and training them on when and how to exercise that flexibility.

The agencies should encourage local and regional administrators to exercise the latitude they have to make the decision not to risk personnel to control fires on lands with low values to be protected or where fire will provide ecosystem benefits. Policy revised in 1995 said that everyone should have a plan for the acreage they are responsible for. There is flexibility in developing and revising the plan.

Implementation Strategy 3 – Provide adequate fire management training to Agency Administrators, and to encourage them to exercise more discretion to enhance safety.

It is particularly important that Agency Administrators who do not have a fire background not inadvertently set unreasonably hazardous objectives for fighting a fire. This ties into their need for at least some fire management training (discussed later in this chapter).

Goal 31. Do not fight fires in a way that will endanger firefighters, regardless of the values to be protected.

Implementation Strategy 1– Ensure that this goal is emphasized in strategic and tactical fire courses.

The agencies should use training opportunities to reinforce the concept that many factors must be weighed in the strategic and tactical decision making process, and that primary among them is the factor of firefighter safety.

There are, perhaps, two aspects of this change. First is recognition of the fact that direct consideration of safety issues needs to be a part of all courses.[4] Second, the agencies should research and develop common sense protocols to evaluate safety, as well as production aspects of different strategies and tactics. The evaluation of the safety aspects of strategic alternatives may prove to be different from the safety aspects of tactical decisions. The evaluations need to be simple, quick, easy to use – probably not black box computer applications. They need to be intuitive tools that help decision-makers frame situations, identify critical safety impacts and quickly compare alternative actions for efficiency in mitigating potential safety threats.

There will be separate safety evaluation protocols for Agency Administrators who issue delegation of authority, for IMTs preparing incident action plans, and for crews on fireline assignments.

Implementation Strategy 2 – Do not allow constraints on firefighting approach due to ecological considerations to interfere with safe protocols.

Firefighters must not be put in danger as a result of ecological constraints or objectives. Safety takes precedence, and firefighters should be withdrawn when ecological factors are likely to interfere with safety considerations. Firefighters must be confident that sufficient risk management controls are in place (e.g., effective escape routes, safety zones, and control applications) before implementing "light on the land," "light hand," or Minimum Impact Suppression Tactics (MIST). Particular concern must be applied when the Haines Hazard Index is in the 5-6 range and MIST practices are being used.

Implementation Strategy 3 – Do not permit structural firefighting by firefighters not trained for it; clarify and support their role.

The agencies need to clarify and communicate to all Federal firefighters the comprehensive policy regarding structure fire suppression and protection. There are some

[4] The new Firefighter Fatality Case Studies course and others under consideration by the Safety and Health Working Team may provide materials or modules to be used in various courses or to be self-standing.

unique differences that exist between agencies; e.g., the NPS has structure fire protection responsibility in park system units; in California, FS engines carry breathing apparatus. Federal policy needs to be clear regarding these differences, and the roles and responsibilities of Federal firefighters when structures are involved by fires in the wildland-urban interface. Present policy makes it clear that Federal firefighters not trained in structural firefighting should not engage in an interior attack; even if trained, they should not be fighting fires within private homes. The effort to establish and clarify this policy must involve the participation of the agencies' non-Federal partners, particularly the state fire agencies.

If the Federal wildland firefighting policy is to stay out of direct structural fire suppression and only protect structures indirectly, there needs to be political backing of firefighters on this policy by the leadership within and outside the fire program. The Federal firefighters sometimes feel pressured to assist in any way they can when a home or other structure is burning. Homeowners and local fire departments need to understand the Federal policy, too, as discussed under public education in Chapter 6. (See also the related discussion of Goal 70 teaching firefighters the basics on interface hazards.)

Goal 32. The strategy and tactics of fighting a fire must be flexible and periodically reconsider the available resources and the changing situation.

Implementation Strategy 1 – Train and evaluate fire managers in being flexible and readjusting strategy and tactics as needed.

It is important not to lock in on the first strategy or tactics selected, and then not change no matter what. Sometimes one may have to switch from an offensive to defensive mode or vice versa. The strategy or tactics for a fire should not simply be stated once and for all, and then implemented as best as possible using existing resources. Changing availability of resources and failure of resources to appear as scheduled may necessitate modification of strategy and tactics. Not having enough resources may not only doom a strategy but may also unnecessarily endanger firefighters.

Strategy and tactics are selected using a hierarchical approach. Agency Administrators provide direction that leads to defining incident objectives, which in turn leads to a choice of strategy, and then the tactics and resources required to implement the tactics. When things are not working out, you are supposed to go back up the chain, analyzing each step to see what needs to be revised. A flexible viewpoint is needed at each step, but one does not immediately change strategy if the tactics are not working.

Retaining flexibility not only permits decision-makers to re-evaluate the safety risk, but also improves efficiency of operations. (See also related Goal 20, on legitimizing querying of tactics by subordinates, and Goal 30, Strategies 1, 2, and 3, on allowing flexibility).

Use of Fire Models[5] **–** Strategies for dealing with complex wildfires and prescribed fires can cause significant disruption of human activities, affect the health and welfare of citizens and firefighters, determine the allocation and movement of scarce firefighting resources, and involve the expenditure of millions of dollars.

Drought conditions, multiple fires, extreme fire behavior, the intermix of homes and wildland fuels, forest health decline and concerns for firefighter safety have challenged fire managers in the 1980s and 1990s, and require the best models to help develop appropriate strategies and tactics. Increasingly managers want to base strategies on long-range predictions of fire behavior – 30 or more days into the future. This is a difficult task to undertake successfully in the uncertain world of fire weather and fire behavior forecasting, but there were several examples in the 1994 fire season where such projections were helpful to decision-makers on wildfires in Colorado, Idaho, Washington, and Montana.

Computer programs that have been developed to aid the long-range projection process include FIRES (Fire Information Retrieval and Evaluation System), RERAP (Rare Event Risk Assessment Process), and FARSITE (Fire Area Simulator). A critical step in the selection of appropriate modeling approaches and programs is for the assessment team and the requesting officials to agree on an objective for the assessment. The objective must be tailored to the circumstances of the fire situation and the manager's concerns.

Long-range projections have been developed for three different types of fire situations: potential growth of large escaped fires, regional fire assessments regarding multiple fires, and growth behavior of fires that can produce benefits to environmental resources. In requesting the assistance of a long-range projection team, managers want to minimize future surprises through an understanding of probable rates of spread, fire intensities, and direction of fire spread. Also of interest are estimates of season-slowing or season-ending precipitation events.

[5] We thought this topic should be in the group here rather than by itself under the heading Ecological Considerations, where it was in the Phase II report.

Goal 33. Long-term fire growth assessment models should be used in making decisions on fire management strategy.

Implementation Strategy 1 – Prepare ahead of time for use of models.

Agencies must prepare in advance for the use of models by providing a source of experts trained in long-range projection methods, ensuring that necessary fuels and fire behavior information and maps are prepared in advance, and that Agency Administrators are briefed regarding their responsibilities in the process. This, once again, is a practice done in some agencies some times, but it needs to be done more broadly.

When requesting a long-range fire behavior projection, it is generally best to order a team of specialists including a fire weather forecaster, one or more fire behavior analysts and a fire suppression operations specialist or prescribed fire specialist. It also is important at the outset to establish the objectives, assumptions, and probabilities upon which the assessment will be based.

Objectives should be negotiated between the requesting unit and the team to ensure that the assignment is feasible. Once the objectives have been determined, the team will be able to select the most appropriate modeling approaches.

The requesting official and the long-range projection team must define reasonable expectations at the outset, so that there is a common understanding of products to be produced: For example:

1. Define assessment periods in terms of 6-10 days, 10-30 days, and >30 days. The 1-5 day assessments are best left to the Fire Behavior Analysts on individual fires.

2. Define fire weather and fire behavior assessments in terms of probabilities or estimates, not as absolute numbers.

3. Determine fire spread directions, not fire perimeters.

4. Revise assessments every 3-5 days, or as conditions change.

5. Complete the long-range assessment in a timely manner (within 2-3 days).

6. Make assessments for at least two scenarios: worst case and more probable case (define assumptions for each case).

7. Match assessment objectives with methods to achieve appropriate resolution (danger rating models versus fire behavior models).

8. Circulate the long-range fire behavior assessment report widely after the final briefing of results.

Based on recent experiences, it can be concluded that the use of long-range fire behavior projections can be a helpful adjunct to decision making. But it must be recognized that fire growth simulation models are designed to assist in decision making. Models provide data analysis and information to the decision-maker. People, not models, will make the final decisions regarding strategies and tactics.

Implementation Strategy 2 – Use fire growth models in real time to establish priorities.

While there is danger to firefighters from fires of all sizes, one of the most dangerous times is the transition of a fire from a small one that can be fought with initial attack resources, to a larger one requiring more resources and a change in Incident Commander. As resources build up, and as the Incident Command System expands to meet greater complexity, there can be a danger period. Once a fire gets large, there are many opportunities for accidents. Therefore, predicting possible blowups and stopping them from occurring can be important to safety as well as ecology.

Ideally, fire models are used ahead of time to develop plans for fighting fires. The suggestion was made by some senior fire managers to also use the models in real time during the fire season to make further decisions about which fires to monitor and which to fight, and to evaluate whether the planned strategy will work.

Some fires give no room for options due to the values to be protected or a combination of other factors. However, in times of limited capabilities, we need to be able to assess which fires need attention, how much, and how fast. This is a general principal, applicable even where there are no critical ecological concerns. The key is to focus on a realistic analysis of the probabilities that the action will be effective, and to identify the potential consequences if the action fails. The "action" may include monitoring a fire but not committing resources to fight it.

Strategy and Tactics

This section discusses a variety of strategy and tactics issues raised in Phase I as important to safety. They are only loosely connected, but each is individually important to safety. There is a brief recap of the problem followed by the goal and the implementation recommendations for each issue, starting with safety zones.

Safety Zones – Current training has succeeded in institutionalizing the safety zone concept, and wildland firefighters generally understand its importance. However, firefighters noted in Phase I that they received little guidance on what constitutes an adequate safety zone and did not know how to estimate the size of the zone required under a variety of fuel and terrain conditions.

Goal 34. Define adequacy of safety zones by terrain type, fuel type, and fuel condition.

Implementation Strategy 1 – Publish a "job aid" (concise notes) on sizing safety zones.

The Forest Service's Northern Forest Fire Laboratory has been conducting research on the sizes of safety zones and has produced some preliminary guidance.[6] The report has been widely disseminated. However, no job aids yet exist to help fireline supervisors and firefighters estimate requirements for safety zones.

The agencies should publish a fireline job aid that will help firefighters and their supervisors recognize, select and prepare survivable safety zones. The job aid should be based on the best available research findings, with additional judgments from experienced firefighters and fire managers. If the information on safety zones given cannot be precise, then at least the best information available should be provided, and the information updated as additional research results become available.

Training on use of this job aid should be incorporated into the Fatality Fire Case Studies course currently under development, the existing "Standards for Survival" course and other

[6]Bret Butler and Jack D Cohen., "An Analytical Evaluation of Firefighter Safety Zones, in the Proceedings of the 13th Conference on Fire and Meteorology, 1996.

training as appropriate.[7] These training packages should focus first on avoiding entrapment altogether, then on the use of safety zones, and finally on shelter deployment as a last resort.

Transition of Command – Some people find it counter-intuitive that smaller fires may pose greater safety risks than large "project fires." However, fire operations can be very chaotic during initial attack and transition phases. Quite often, fire conditions are at their worst while organization is at its minimum. "Transitions" from one level of incident to another are periods of command change, and can be times of disorder, rapidly shifting tactics and miscommunication.

Expert firefighters interviewed during this study recognize initial and extended attack as potentially the riskiest of fire operation environments. The larger fires have Incident Management Teams with Safety Officers and very experienced commanders. Often only the IC or a small group of people is managing a fire during initial and extended attack, with most resources focused on tactical operations. The transition between levels can be especially dangerous because not only is the fire situation becoming more complex, but the command function changes from "fire fighting" to managing an emergency incident.

Radio communications problems on fire initial and extended attack operations also can contribute significantly to safety problems. As fire operations in the urban-wildland interface and interagency operations have become more common, multiple agencies frequently respond to incidents in their initial stages or as they extend. The responders may include local fire departments, law enforcement officers, emergency medical services, state natural resource agencies, disaster relief agencies and others. The lack of radio system compatibility across agencies frequently hampers communication and unified effort, intensifying the risks.

In some cases when the fire's growing complexity necessitates transition to a larger organization, the transition does not occur in a timely manner. In these situations fireline Incident Management Team can find themselves under-organized and overwhelmed by the increasingly complex fire situation. Initial Attack and Multi-Resource Incident Commanders may fail to recognize the need to transfer command to a more highly qualified IC or to expand their organization until the need is imminent. Some ICs regard turning a fire over to a more experienced commander as a failure or embarrassment. This is deeply rooted in the IC sub-

[7] The "Fatality Fire Case Studies" course was until recently entitled "Firefighter Survival."

culture. We heard of many experiences where teams took chances with safety in their all-out effort to "catch" a fire before a more experienced team would be required. A concerted effort to catch a fire does not necessarily mean a violation of safety-based firefighting, but experienced firefighters know that this pressure to perform often has resulted in excessive risk-taking in the past.

Another transition flagged as having dangers that may not be obvious is the transition back to a local unit from an Incident Management Team.

Even under the best of circumstances, transferring command responsibility from one group to another represents an inherently complicated task that is hard to do well. For these reasons, firefighters, IC's, Incident Management Teams, and Agency Administrators must recognize transitions as complex situations with enormous safety implications. This led to the following goal:

Goal 35. Assure that safety is adequately considered as transitions are made from initial attack to extended attack, from extended attack to Type II IMT, from Type II to Type I IMT, and back from IMT to local unit.

Implementation Strategy 1 – Emphasize the safety aspects of handling transitions in various command courses.

The agencies should make sure there is adequate emphasis put on the potential dangers at the operational level in making transitions in the S-200 (Initial Attack Incident Commander - ICT4), S-205 (Fire Operations in the Urban Interface), S-300 (Incident Commander, Multiple Resources), S-430 (Operations Section Chief), S-400 (Incident Commander), S-420 (Command and General Staff), and S-520 (Advanced Incident Management) courses. The various dangers of transitions, and possible problems with attitudes related to making transitions need to be pointed out, especially the importance of maintaining good communications during the transition. The transition needs to be recognized as a different kind of event requiring special attention.

Implementation Strategy 2 – Develop checklists for each of four levels of transition.

Provide checklist-style job aids to facilitate command transitions of four types:

- Initial Attack to Extended Attack-Multiple Resources (Type IV to Type III)
- Extended Attack to Escaped Fire (Type III to Type II)

- Type II/Type I Transitions (both directions)
- Transition from an Incident Management Team back to the local unit

These job aids should appear in the Fireline Handbook, with specific checklists for each. They should also include guidance general to all types of transitions, such as:

- Do not hand over fires in the heat of the day.[8]
- No transition will be made without first evaluating and ensuring LCES for the firefighters.
- Transfers of command will be made face-to-face.

Emphasizing Effective Initial and Extended Attack – In the past 20 years, the agencies have been highly effective on most initial attack efforts. While affected by various environmental and weather factors, too, it has been an indication of success that the vast majority of fires are kept under 100 acres. For example, in 1994, only 2 percent of the 70,000 fires required large-scale suppression efforts. In fact, 94 percent of the total acreage burned resulted from two percent of the fires. Fire suppression expenditures follow the same pattern, with one percent of all fires accounting for 62 percent of fire suppression costs. [9]

However, as the agencies continue on a path of downsizing and budget-cutting, the resultant organizational changes have eliminated some critical initial attack and extended attack resources and field level oversight by experienced personnel, diminishing the capacity to safely and effectively attack unwanted fires while they are small. At the same time, the agencies expended record-breaking amounts of money suppressing large fires in 1994 and 1996. Though stated policy says otherwise, the actions suggest a willingness by budget decision-makers to eliminate agency resources needed for fighting many small fires, and chance having to occasionally pay the price when a fire becomes large.

---

[8] From a paper by Karl Weick, "Wildfire and Wisdom," University of Michigan, as quoted by Patrick Withen, in a presentation at the "Canada/U.S. Fire Safety Summit, Rossland, B.C., Canada, September 29-October 2, 1997.
[9] USDA Forest Service, Fire and Aviation Management, "Courses to the Future – Positioning Fire and Aviation Management," 1995.

Fire program management is well aware of the economic arguments in favor of expending funds to catch unwanted fires in their earliest stages.[10] The debate on the merits of spending money up-front to keep fires small is driven by budget pressures, and centers around trade-offs between avoiding the monumental costs of large, escaped fires and the risk of overspending on smaller ones. The public and political leaders outside the agencies tend to be more willing to spend money on large catastrophes when they occur than to spend money for prevention or resources to nip problems in the bud. (This has traditionally been a problem for many safety programs in and outside of fire protection.)

However, large unwanted fires are not only expensive, they expose massive numbers of firefighters and support personnel to risk. Many people within the Federal firefighting community have called for a reassessment of policy and procedures regarding fire control priorities. They argue that by focusing on rapid, effective initial attack of unwanted fires (such as the use of the new, small, fast attack air tankers where appropriate), they can significantly reduce fire expenditures and advance the cause of firefighter safety by reducing risk exposure. This approach would represent another fundamental cultural change for the agencies, not unlike those shifts in military doctrine that have come to emphasize superior firepower over manpower. It is interesting to note that both the Canadians and Australians commit far fewer people to individual fires, and both countries have firefighter safety records superior that of U.S. agencies.

Goal 36. Where appropriate, in areas designated for aggressive attack, more fires should have a rapid initial response when they are small, if resources are available (and when the potential for spread and the values to be protected are a concern).

Fires need rapid deployment of appropriate fire suppression or management resources. Some fires may produce resource benefits if managed in a manner that is consistent with fire management and land use management plans. A fast response facilitates size-up and making a decision on what to do for a particular fire.

Implementation Strategy 1 – Get employee buy-in at all levels for use of more vigorous initial and extended attack.

The agencies must establish a comprehensive policy that enables them to simultaneously achieve two organizational missions:

[10] We are not addressing here the fires that are monitored but allowed to burn for desired land management results.

1. Accomplish their targets for use of fire in eco-system management.
2. Maintain their capability to safely and effectively control unwanted fires without the high cost and high risk of massive mobilizations.

These missions have to be met in the face of agency downsizing requirements. The agencies should design and carry out a collaborative process to involve employees at various levels of their organizations and interagency partners in establishing a comprehensive policy to simultaneously complete the two missions outlined above.

Fire Orders, Situations That Shout Watch Out, LCES, and Other Tactical Guidelines – There is general agreement that fire orders are and should be a basic tenet of the culture. There is also agreement that they should be understandable, memorable, direct, and reliable.

Philosophies vary, however, on the value of rules and the role rules play in effective, highly reliable organizations. Attitudes toward the 10 Standard Fire Orders, 18 Situations That Shout Watch Out, LCES, Downhill Line Construction Guidelines, and other "tactical references" are no exception. Some argue that the Fire Orders are *orders*, not to be violated since the lessons on which they are based have come at a high price. Others argue that the agencies should be teaching people to think flexibly rather than follow rules, and that the various tactical references and "rules" are intended to distill past wisdom and to prompt leaders to think about safety, but not to be inflexible hard and fast rules, a philosophy which would represent a fundamental shift in thinking, and is controversial.

In the report on the South Canyon multi-fatality fire, the Firefighting Orders and Watch Outs were described as follows:

> *"The 10 Standard Firefighting Orders and 18 Watch Out Situations were designed to help firefighters recognize and mitigate firefighting risks. They also provide a ready checklist for periodic review as fire action progresses. Every firefighter is instructed in their meaning and application."*[11]

[11] Report of the South Canyon Fire Accident Investigation Team.

This passage appears to describe a situational awareness and risk assessment tool. However, in the cultural context of the five agencies, departures from these safe practices are viewed as violations of rules not intended to be broken:

> *"The Ten Standard Fire Orders are firm. We don't break them; we don't bend them. All firefighters have the right to a safe assignment." - Bruce Babbitt and Dan Glickman; Secretaries of the Interior and Agriculture*[12]

In fact, the agencies routinely use these references as a yardstick against which performance is measured when tragedy strikes.

Ironically, there is a growing dissociation between the behavior of firefighters and this policy. Thirty to forty percent of the survey respondents in Phase I indicated that fire orders are frequently violated, that lookouts and safety zones are often inadequate and that risky downhill fireline construction was fairly common and encouraged by transporting firefighters to the ridgetops above fires by parachute and helicopter.

Besides the issue of how rigid are the orders, there were many complaints in the interviews and surveys about having far too many tactical guidelines to remember in the field – 54 in total. The guidelines include the 10 Standard Firefighting Orders, 18 Watch Outs, 4 Common Denominators of Tragedy and Near Miss Fires, Downhill/Indirect Line Construction Guidelines, LCES, Urban-Wildland Watch Outs, the Look Up, Look Down, Look Around Indicator Checklist, and others. By one count, the various tactical references include 156 separate pieces of information intended to guide the actions of firefighters on assignment.

According to Miller's Law, the human mind can comprehend just seven (plus or minus two) concepts or inputs while engaged in a task.[13] It is unlikely that the 10 Standard Fire Orders, 18 Watch Outs, and other tactical references provide effective guidance to firefighters, since their overwhelming number precludes their use as concise, memorable and sequential guides.

A related issue was that in the most recent modification of the Watch Outs and fire orders, their language was weakened and unnecessary items were added to the lists.

---

[12] Dept. of the Interior, Bureau of Land Management, Standards for Fire Operations.
[13]George A. Miller, 1956, "The Magic Number Seven Plus or Minus Two: Some Limits on Our Capacity to Process Information." Psychological Review 63: 81-97 and J. Cook, "Fire Environment Size-up: Human Limitations versus Superhuman Expectations," Wildfire, December 1995.

Though still controversial, there is a growing recognition for the need to consolidate and change the use of these rules, guidelines and tactical references.[14]

Thus, to positively impact the behavior of firefighters in the field, the agencies must accomplish three things relating to the Fire Orders, Watch Outs and other safety guidelines:

1. Conduct formal content analysis of the entire spectrum of safety guidelines, reducing them to a minimum, essential set.

2. Determine from that essential set which, if any, represent truly hard and fast orders, rules, or maxims *never* to be violated.

3. Foster a culture that expects people to think rather than obey rules and prepares them to function this way. Prepare firefighters with a framework for *applying* (versus just "knowing") fire safety guidelines and influencing the decision making process. Training firefighters to use a common risk management process will provide that framework. "Training people to think rather than obey rules" was one of the highest rated "solutions" in the Phase I survey.

The above considerations led to Goals 37 through 39.

Goal 37. To prevent information overload and allow flexibility, the fire orders should periodically be screened to identify the minimum essential set, and that should be rigorously enforced.

Implementation Strategy 1 – Conduct a content analysis of the various guidelines and produce a reduced set.

The agencies should conduct a formal content analysis of all fireline tactical and safety references (10 Fire Orders, 18 Watch Outs, LCES, Downhill/indirect Line Construction Guidelines, Look Up, Look Down, Look Around Indicator Checklist, Urban-Wildland Watch Outs, etc.). Following this analysis, the agencies should revise their fireline safety references to produce a minimum, essential set. This set of orders and guidelines should be revisited

[14] See Cook, 1995; Braun and Latapie, 1995; Human Factors Workshop, 1995; Putnam, 1995; and Weick, 1995. Full references are in the bibliography submitted as an appendix to the Phase I report.

periodically, in light of information on casualties and near misses, and "stories" about decision-making at fires. The degree to which the guidelines help avert tragedy or lead to confusion or inflexibility should be considered.[15]

Implementation Strategy 2 – Re-define which are truly orders and which are guidelines that can be modified under special circumstances.

As part of the above screening process, the agencies should determine which, if any, elements should be stated as mandatory rules or "orders," and which should be codified in agency policy. One can frame a standing order as "do this unless you have darned good reason not to. Be prepared to defend deviations." That is different from saying "always follow this no matter what." Examples should be given of reasonable exceptions to the rule – and how often such exceptions are likely to occur. In other words, don't encourage exceptions to a rule that will usually keep you out of trouble.

The intent of this strategy is not to establish rules, but to establish the revised set of "orders" as a teaching tool, an effective, tactical job aid, and the basis of a situational awareness and decision-making framework that will help define the new firefighter safety culture.

The above strategies should be implemented in concert with strategies listed under Goals 38 (risk assessment), 39 (training on Watch Outs), 72 (emergency skills), and 77 (shielding supervisors from information overload), and the various discussions on training leadership in decision making.

Goal 38. Fire safety practices should be driven by a systematic risk assessment that gets updated periodically.

Implementation Strategy 1 – Adopt a comprehensive risk management approach to firefighter safety.

The organizational culture of wildland firefighting should flow around a core philosophy of risk management. The Federal Emergency Management Agency (FEMA) defines risk management as "...any activity that involves the evaluation or comparison of risks and the

[15] Dr. Kurt Braun (University of Idaho - School of Psychology) has completed a "hierarchical cluster analysis" on the fireline safety references as part of small studies examining memorability. Dr. Braun's work was not published at the time of this report but it is planned for publication and was recently presented at an American Psychological Association meeting.

development of approaches that change the probability or the consequences of harmful action." This concept encompasses a process of identifying and evaluating risks, as well as identifying, selecting and implementing control measures to alter risk.[16] A simpler definition calls risk management "a process of evaluating and mitigating hazards in the work environment." Regardless of definition, risk management must be an ongoing and continuously improved process. Likewise, the methodology for risk assessment needs to be periodically revisited and revised.

The agencies should adopt a risk management approach to firefighter safety which de-emphasizes the memorization of rules and emphasizes risk assessment, evaluation, mitigation, and more evaluation – within the firefighter's work situation. The approach should prepare firefighters with a framework for *applying* (versus "knowing") fire safety guidelines and for influencing decision making and the decision making process. The Superintendent of the Boise Interagency Hotshot Crew, Jim Cook, has developed an approach to risk management that is a five-step risk management process that is based on the U.S. Army's operational risk management standards. Though adapted to wildland firefighting it is philosophically consistent with the Army's method and with other five-step risk management approaches, including the one employed by FEMA. Cook's approach appears sound and can be a foundation for a *comprehensive* risk management approach to firefighter safety. This should be a major initiative of the NWCG Safety and Health Working Team, the Training Working Team, and possibly others as appropriate.

Implementation Strategy 2 – Establish and cultivate a culture that encourages people to think, make effective decisions, and place a priority on firefighter safety.

In this culture, the fireline leader would willingly use the essential set of fireline safety references not as a list of inviolate rules, but as mnemonic devices and a means for distilling wisdom and experience. Rather than blindly following rules (or resisting them), fireline leaders would apply the references to support a situational awareness and risk management process.

[16] Federal Emergency Management Agency – U.S. Fire Administration, Risk Management Practices in the Fire Service, 1996.

Implementation Strategy 3 – Incorporate the risk management concept in training.

The NWCG has incorporated Cook's risk management approach in the recently re-developed S-339 (Division/Group Supervisor) course. Cook's approach will also form the foundation of the Fatality Fire Case Studies course currently under development.

After introducing the concept of risk management at the firefighter level, continue to reinforce and expand its use throughout the curricula. Currently, risk management is well addressed in S-131 (Advanced Firefighter), but a comprehensive approach will require compatibility with what is done elsewhere in the curriculum.

The training needs to clarify the use of the various fire orders and guidelines, and how they relate to risk management.

Goal 39. The list of Watch Outs needs to be integrated into training and decision making, and their role as warnings emphasized.

Implementation Strategy 1 – Clarify the use of the Watch Outs in training.

To a large extent, this goal is already met in existing training. However, there seemed to be a perception among some respondents in Phase I that the Watch Outs have become disconnected from decision-making and the creation of strategy and tactics. Thus feedback needs to be given to the instructors in leadership and tactical classes to ensure they train that the "list" of Watch Outs is more than a list, it is a tool. They should train through role playing on how to use the Watch Outs to assist in maintaining situational awareness and make effective decisions during periods of high stress. The Fire Orders and Watch Outs are "touchstones" that should be the baseline to which a firefighter returns during times of high stress, fatigue, and information overload.

Span of Control – Maintaining an appropriate "span of control" is a widely accepted management and organizational principle. Organizations typically try to optimize supervisory span of control by having minimum and maximum limits for the number of people assigned to each supervisor. This enables an organization to maintain productivity while preventing supervisors from becoming overextended.

Traditionally, organizations, including the military, tend to use a supervisory span of 3-7 persons. Recently, some business organizations, interested in becoming "leaner" and more competitive, have found that they can remain effective with larger spans of 11-15 "direct reports" per supervisor or manager. This trend has infiltrated the working environments of the agencies. Whether the larger span of control is feasible depends on the nature of the work to be accomplished. Maintaining adequate safety oversight demands smaller spans of control. Consequently, using a span of control at 3-7 people per supervisor continues to make sense for fireline operations.

Participants in Phase I of this study specifically raised as a safety issue the frequently too-large span of control for Division/Group Supervisors. Division and Group Supervisors are often expected to provide effective tactical supervision for many resources, often dealing with supervisors of more than five crews, spread over long distances. Study participants reported that Division Supervisors are often overextended. They note that a reluctance to create additional divisions or to sub-divide divisions exacerbates the problem.

The agencies currently employ a policy of assigning Incident Management Teams based on the complexity of the situation. Some people take the number of divisions (or division supervisors) in use as measure of complexity, rightly or wrongly. For example, fires managed by Type II Incident Management Teams generally are expected to have between two and four divisions. A greater number of divisions may send up a "red flag" and trigger a request for a Type I team. Some people believe that this approach contributes to the reluctance to increase the number of divisions (when that would help reduce the span of control), and has produced the unintended result of diminishing the performance of Division Supervisors, and hence putting safety at risk.

Some study participants suggested that the agencies can relieve the span of control issue by recreating the "Sector Boss" position that was used prior to the transition to the ICS, and/or by employing the segment concept (breaking divisions into smaller geographic pieces) as was discussed earlier in this report.

Goal 40. Workable spans of control should not be exceeded at any level of management, especially not by Division and Group Supervisors.

Implementation Strategy 1 – Encourage flexibility in establishing and subdividing divisions when appropriate.

The agencies should encourage or require Incident Management Teams to establish manageable-sized divisions at fires. Amend policies, guidelines, and training to allow Incident Management Teams the freedom to establish the number of divisions necessary to safely and effectively manage a fire under their control. Do not automatically bump up the level of IMT required based only on the number of divisions. The agencies should also encourage the use of segments.

Implementation Strategy 2 – Reaffirm ideal span of control.

The agencies should reaffirm the concept of maintaining an ideal supervisory span of control for fireline operations at 3-7 people per supervisor, with the optimum being about 5.

Night Operations – In some situations, night operations can be safer than day operations, because nightfall often brings higher humidity, reduced winds, cooler temperatures, and lower fire intensity. The Canadians and Australians often prefer fighting fire at night. However, study participants expressed concerns over situations when fire operations extend into the night without crews having adequate terrain familiarity, or when the nighttime weather conditions produce more dangerous or unsuitable fire behavior compared to daytime (e.g., with a passing unseen front), when the dangers of rolling rocks and falling snags is high or when escape routes and safety zones are hard to find due to reduced visibility. Additionally, because of inadequate periods and facilities for firefighter rest in daytime, night operations can contribute significantly to dangerous firefighter fatigue.

The ability to identify when night operations are appropriate should be built into operations planning and training, which leads to the following goal.

Goal 41. Develop and use criteria for determining when night operations would be safe and effective. Acknowledge that, depending on circumstances, night operations are a tool that may enhance safety or may increase risk.

Implementation Strategy 1 – Develop a job aid or set of criteria for deciding when to use night operations, and when not to.

"Night work" is covered by a single paragraph in the Firefighting Safety chapter of the Fireline Handbook (NWCG Handbook 3). The agencies, through the NWCG, should develop night operations decision criteria (in the form of a brief job aid) for inclusion in the Fireline Handbook. The job aid should include criteria for when night operations would be safe and effective. These criteria must acknowledge that, depending on circumstances, night operations are a tool that may enhance safety or may increase risk.

The job aid should assist fire managers to make a go/no go decision for night operations. It should include the availability of adequate rest in the decision criteria. For some terrain and some areas it may be appropriate to shift the local culture either way toward or away from the use of night operations. The ability to identify when night operations are appropriate should be built into training.

A related issue, firefighter fatigue and adequate rest after night operations, is discussed in depth in Chapter 6.

Leadership Experience and Competence

Unfortunately, one cannot be assured that in the present culture all key fire management personnel meet the performance requirements of their position. As discussed in Chapter 3, there has been a loss of leadership experience due to early retirements, career disincentives to remain in fire duty, and a lack of adequate incentives on the positive side. Lateral transfers to accommodate downsizing, Affirmative Action "fast-tracking," and collateral duties are accepted parts of the culture. The findings of the 1995 Human Factors Workshop stated that "Unqualified personnel are making firefighting unsafe. This includes inexperienced EEO, downsizing laterals, and others who have not worked their way up in the fire organization with a combination of training and experience."[17] More specifically:

[17] USDA Forest Service, F&AM Technology & Development Program, Findings From the Wildland Firefighters Human Factors Workshop, 1995.

Fast Tracking – There is a perception in the workforce that some women, minorities, and others have been advanced too rapidly without adequate preparation, experience, and Red Card credentials. People spontaneously brought up comments about fast-tracking during the one-on-one interviews. This is an issue that people feel very strongly about. There is strong consensus that without adequate training or graduated experience, some of these fast-tracked personnel are contributing to safety problems. Eighty-two percent of those surveyed felt fast-tracking was a problem, with 49 percent strongly agreeing. The really remarkable finding from the survey was that women and minorities expressed reservation about fast-tracking with about the same frequency as did white males: 84 percent of the women and 84 percent of minorities agreed or strongly agreed that there is too much fast-tracking, versus 82 percent of the men. One experienced female Crew Supervisor said she was very concerned about young women being placed into positions they were not prepared for, and that they would make other women look bad through their incompetence.

Most people interviewed went out of their way to say they had no problem with women or minorities being supervisors or serving anywhere in the hierarchy so long as they were not going to hurt the people below them because of inadequate training or experience. The concern on the part of some of the women and minorities interviewed was that they were being set up for failure, not intentionally, but inevitably nevertheless.

Bumping Under RIFs – Similar to the concern about fast-tracking was a concern about transfers into key fire Incident Management Team positions by people in management who had little or no fire experience, when people get bumped from their position under a reduction in force (RIF). Again, there was a concern that their decisions would affect safety. The concerns over lateral transfers did not register quite as strongly as the concerns about fast-tracking, but 69 percent of the firefighters surveyed agreed that lateral transfers under RIFs were a problem, with 39 percent strongly agreeing.

Criteria for Selecting Key Fire Management Staff – Study participants reported that while circumstances vary by agency and time period, the agencies have generally weakened their use of fire experience as a selection criteria for key fire management positions such as Fire Management Officers (FMOs). People interviewed in the course of this study indicate that having fire experience ranges from being a key selection factor, to a weak factor, to not being included at all for various FMO positions. Fifty-four percent of survey respondents found experience lacking among FMOs. This trend has enormous safety implications.

The FMO is a critical position in influencing safety. Firefighters interviewed in this study singled out FMOs and Crew Supervisors as the positions having the most influence on safety. In a time of downsizing, agencies may find themselves short of personnel with the necessary experience. Downsizing also creates pressures to place individuals from another discipline into an open fire management position. These situations allow people with little fire background to be appointed as FMOs.

As in many large organizations, there are also some people who are promoted beyond their level of competence (the Peter principle). Failure to hold people accountable, failure to screen people for suitability for promotion (beyond considering their technical skills), and difficulty in weeding out or demoting poor performers all contribute to there being some poor leaders in fire management ranks.

The agencies can ill-afford to install people into fire management positions who are less than adequately experienced or trained, thereby sacrificing safety to meet human resources targets or other organizational goals. However, we believe that they do not have to make a choice. The agencies can simultaneously assure competency in their fire management programs and meet these goals.

Crew Supervisors – The wildland firefighters interviewed and those surveyed generally felt that the majority of supervisors were very good, and a strong point of Federal wildland firefighting. However, a small but significant fraction of supervisors were felt to be unsuitable for the job, yet were not weeded out in the current organizational culture. There was a strong consensus (87 percent agreement) that a Crew Supervisor (and higher positions) should not only be able to pass tests, but should also be screened for suitability as a leader before promotion, and screened periodically on-the-job. Leadership and decision making under stress should be among the screening factors. Although this opens the selection to a certain amount of subjectivity, it is something that has been a component of local fire department civil service systems in many cities for decades. "Multi-rater Feedback" (or "360 degree assessment") represent a valuable tool for this purpose, and is discussed later in this report.

The above considerations led to the following three goals:

Goal 42. Fire experience and competency should be considered as critical selection factors for fire leadership and fire management positions.

Goal 43. All personnel in a given position must meet the performance requirements of that position.

Goal 44. Fire management officers (FMOs) must be selected from among those with fire backgrounds.

Implementation Strategy 1 – Set and enforce minimum requirements for key leadership positions.

Goals 42, 43, and 44 above and Goals 47 and 48 on Agency Administrator qualifications, to be discussed later, could be addressed through a comprehensive approach to developing minimum qualifications for primary fire management positions, collateral duty positions, and Agency Administrators who make fire management decisions. The Interagency Management Review Team (IMRT) report recommended this approach in 1994. The Federal Fire and Aviation Leadership Council subsequently tasked an interagency ad-hoc team to establish and define competencies for primary fire positions. This team has taken the position that the same competencies will apply equally to collateral duty fire positions, which is appropriate and encouraging. This group also is establishing training requirements, identifying existing decision tools, and identifying the need for additional job aids for Agency Administrators who make fire management decisions.[18] The strategies being developed by this interagency group will go far to address the above goals.[19]

This effort should be fully supported, and implemented as soon as possible. The task group's charge should be expanded, empowering them to recommend not just desired but *required* competencies for Agency Administrators.

The agencies need to establish a strategy for implementing these recommendations across the Federal fire management workforce. The newly defined competencies should be used in hiring, promotion, and transfers to fire management positions. The agencies also need to

[18] The team is led by Paul Broyles of the National Park Service and includes Buck Latapie (FS), Mike Benscoter (F&WS), Frank Boden (BIA), Roy Johnson (BLM), and others. Steve Haglund of the BIA represents the Fire Directors (FFALC).

[19] Revisions to required and recommended training for Agency Administrator and fire manager positions have been approved by the FFALC and are scheduled for implementation by Summer 1998.

establish accountability mechanisms to assure that the competencies are applied to these decisions.

Implementation Strategy 2 – Require fire experience for the FMO position.

The agencies should require that all FMOs have the experience and background appropriate for their position. Select personnel to fill FMO positions only from a pool of candidates known to meet the appropriate competencies for the position (consistent with Implementation Strategy 1 above).

Implementation Strategy 3 – Review incumbents who do not measure up, and reassign or retrain if appropriate.

Throughout the study we have heard about unqualified personnel occupying key fire management positions with direct impact on safety, including Fire Management Officers. Should agencies find that individual employees incumbent in these types of positions do not have the necessary competencies, they should be reassigned or at least assisted in gaining the competencies at the earliest possible time. Fire Management Officer and other key fire management positions must be filled by people meeting the competencies approved by the Federal Fire and Leadership Council. Of course there may be people who do not have prescribed credentials but have proven themselves as having the necessary competency, and they should be kept in their positions. Undoubtedly there will be challenges to attempts to remove people when requirements are redefined after they have been given a position, but the attempt should be made, especially for the most flagrant cases.

Implementation Strategy 4– Require Fire Management course for FMOs or their equivalent.

The "Fire Program Managers" course is currently required for <u>new</u> FMOs in the FS and for <u>all</u> FMOs in Interior agencies. The agencies should require this course for <u>all</u> management positions dedicated to fire management, including incumbents who have not had it. It is difficult to list, by agency and position, who should be required to attend this training, but the intent should be that all District/unit level FMOs would attend. One training officer suggested that a simple way of thinking about who should attend is "if you have fire management in your title, go to this course."[20]

[20] This requirement was approved by the FFALC in February 1998 and now needs to be implemented.

Implementation Strategy 5 – Give fire management training to all Agency Administrators with fire program responsibilities.

The following courses are available for Agency Administrators:

> "Fire Management Leadership," for Forest Supervisors, Park Superintendents, BIA Superintendents, FWS Refuge Managers, BLM Managers, etc.
>
> "Local Fire Management Leadership," for District Rangers, Area Resource Managers, Chief Park Rangers, etc.
>
> "Fire Management for Executives," in development, intended for Deputy Chiefs, Associate Directors, Regional Foresters, State Directors, Regional Directors, Area Directors, etc.

The agencies need to examine the above courses to evaluate their treatment of firefighter safety and revise them as necessary. More importantly, we recommend that they be mandatory.[21]

- - * * * - - -

Also relevant to implementing the above three goals is Implementation Strategy 3 under Goal 11, the establishment of an apprenticeship program, which ultimately will produce people with better backgrounds for fire management assignments.

Freshness of Experience – Most Red Card certifications remain valid if the holder functions in the certified capacity once within a five-year period. Rusty command skills were thought to be a major problem by 28 percent of those surveyed in Phase I. At least one state (Washington) uses a three-year rather than five-year threshold to keep fire managers certified. Technology and procedures change too much over five years for five years away from command to be a safe period. This led to the following goal:

Goal 45. Those in sensitive command functions should have relatively fresh or updated experience.

[21] This, too, has been approved by the FFALC, in February 1998.

Implementation Strategy 1 – Require more recent experience (or equivalent training exercise).

This was already discussed in Implementation Strategy 4 under Goal 11, which dealt with various ways to increase experience levels.

Crew Supervisor Leadership Competency – The participants in this study generally felt that the majority of Crew Supervisors were very good. More than 90 percent of the survey respondents believe that the concern Crew Supervisors show for their people's safety represents a strength of the Federal firefighting system. On the other hand, when asked to rank the fire management positions most in need of strengthening, 34 percent of the survey respondents indicated that Crew Supervisors were their priority. This could be taken to mean that it is a key position and needs all the help it can get. There was strong consensus among the participants that Crew Supervisor candidates should be screened to determine their suitability as a leader, and given courses in leadership skills. Though screening opens the selection process to a degree of subjectivity, fire departments have successfully screened candidates using suitability criteria for decades.

Goal 46. Crew Supervisors should be selected not only for technical knowledge and experience, but also for their leadership skills, interpersonal communications, and ability to conduct on-the-job training.

Implementation Strategy 1 – Develop a "multi-source assessment" center approach to selecting supervisors.

The terms "Multi-Rater Feedback," "Multi-Source Assessment," or "360-degree Feedback" are used in the human resource development and organizational development fields to describe a concept for obtaining and providing sharply focused feedback on leadership. The concept employs research-based survey instruments to collect information from co-workers, peers, subordinates, superiors, and others to assess an individual's leadership abilities, pinpoint strengths, and identify areas for improvement. The multi-source feedback concept has moved from "emerging technology" to state-of-the-art in the human resource development field.

The agencies should explore the best practices of large organizations that are employing these "360-degree feedback" programs and establish a multi-source assessment program. The agencies would use the 360-degree feedback methods to prepare, select, and evaluate Crew Supervisors. A successful 360-degree feedback program has the potential to improve the

preparation, selection, and evaluation of fireline Incident Management Team across the spectrum of positions.

Implementation Strategy 2 – Stiffen other requirements for Crew Supervisor.

In addition to multi-source assessment, the agencies should implement four practices to stiffen the Crew Supervisor requirements and strengthen the selection process:

- Have Crew Supervisor certifications reviewed by a certification panel. The panel could be comprised of experienced Crew Supervisors and Division Supervisors. The panels could be local (zone), regional, or national, and would screen candidates for appropriate experience, training, leadership ability, interpersonal communication skills and the ability to conduct on-the-job training. Much of this information can be obtained from training and experience records and multi-rater assessment.

- Test (versus just teach) Crew Supervisor candidates about critical elements from the Crew Supervisor Position Task Book prior to final certification.

- Certify new Crew Supervisors only for a probationary period of one season, after which evaluations and 360-degree feedback information will be used to assess performance in the critical areas of technical ability, leadership, interpersonal communication, and the ability to conduct on-the-job training. A decision then would be made on whether to fully certify them.

- Encourage Crew Supervisor candidates to take "detail" or temporary assignments to Hot Shot crews. The National Park Service currently details aspiring Crew Supervisors to three-week assignments with a Hot Shot crew as an opportunity for them to gain experience and to be assessed by an experienced Crew Supervisor. This approach provides an effective model.

These recommendations may be difficult to implement for EFF Crew Supervisors; some additional strategizing is necessary on how to achieve this goal for them.

Implementation Strategy 3– Train supervisors and/or candidates for supervision on how to conduct on-the-job training.

Refer to Implementation Strategy 1 under Goal 14 dealing with training people on how to present OJT, and also the strategies under Goal 71 (on-the-job training).

Other aspects of training supervisors are discussed in the implementation strategies for Goal 69 and Goal 73 (leadership and supervisory skills), and many other goals throughout the report.

Agency Administrators – Many people we interviewed, including several senior firefighting experts, raised the point that the agencies no longer required their Agency Administrators to have any fire background. In contrast to the past, a growing number of Agency Administrators have little, if any, fire management experience. Many people at different organizational levels are concerned that this lack of experience impacts safety when Agency Administrators evaluate fire control strategies, interact with Incident Management Teams, set program priorities, and deal with political pressures at fires.

There exists a strong perception that Agency Administrators and other senior managers lack interest and understanding on critical fire issues and do not go to bat for their fire programs to obtain adequate resources. Consequently, while fire suppression expectations on the part of the public have remained the same or increased, resources have dwindled, directly affecting the ability of the agencies to perform their fire management missions safely and effectively. Fully two-thirds of the survey respondents felt that Agency Administrators and senior staff understood firefighting needs less today than in the past, and that this is impacting safety.

Agency Administrators came under criticism in the interviews and survey for failing to set the proper safety tone in briefings and in dealings with Incident Management Teams. The criticism was of three sorts:

- Meddling in fire management without having adequate fire safety knowledge. We heard of cases where Agency Administrators demanded strategies that did not assure firefighter safety, such as “light on the land” tactics in extreme fire behavior situations.

- Failure to set the proper tone ("the Agency Administrator hid during the fire"). This may be from lack of knowledge or interest, being too busy, or other reasons.

- Inappropriate strategic goal setting, such as having an expectation of containment without understanding that the resources available will not be adequate to do so; or setting politically motivated goals that may increase risk for firefighters.

On the survey, 30 percent of respondents said that Agency Administrators only occasionally or rarely set the proper safety tone; only 23 percent felt they usually set the tone properly. It may also be true that the safety tone set for a fire reflects the Administrator's general safety tone on his or her unit.

Some Agency Administrators were among the harshest critics of their peers. They lamented the fact that Agency Administrators no longer have to have fire experience. About one-third of the Agency Administrators surveyed said that they thought that their fellow Agency Administrators only set the proper tone occasionally or rarely, if ever.

An Agency Administrator does not necessarily have to have experience fighting fire for a season any more than an army general has to have served as a private. However, they must understand their own capabilities, the capabilities of their fire resources, and the tradeoffs between strategy and safety. The above concerns led to the following goals, which are related to Goals 42 and 43:

Goal 47. No one should be allowed to set fire strategy or tactics for a fire or give any operational orders without having adequate fire experience, or training considered reasonably equivalent.

Goal 48. Agency Administrators should have fire background, or strategic fire training [or delegate fire responsibilities to a subordinate with those qualifications]. [22]

Goal 49. The tone and substance of briefings by Agency Administrators should be conducive to and emphasize safety.

[22]Some agency reviewers of this report felt strongly that the portion of the goal statement in brackets should be deleted. Others felt that it was unrealistic to expect every Agency Administrator to have fire qualifications. Ideally, the long range culture change should allow the exception [in the brackets] to be dropped, but it may be necessary to leave it in for the short run.

Implementation Strategy 1 – Revise the fire-related competency requirements for Agency Administrators.

Courses for Agency Administrators need to address know their roles and responsibilities during fires and how to balance land management goals and criteria against firefighting feasibility and safety. The changes in requirements have been approved, but implementation of the training on a broad scale needs to be pursued. See also the Implementation Strategies 1 and 5 under Goals 42 and 43.

Implementation Strategy 2 – Give examples to Agency Administrators of critical safety problems they can affect in meeting with Incident Management Team.

Agency Administrators need to understand their role in giving direction through briefings and their delegation of authority, and the need to have accurate and realistic alternatives in the WFSA. They need to understand the consequences of failure (e.g., if a chosen strategy fails, will it result in several hundred more acres burning or will it result in entrapment of several crews?).

As part of their formal training (e.g., the course noted under Goals 42 and 43) give Agency Administrators specific examples of good instructions and dialogues. Also, give examples of mixed messages and orders where someone pays lip service to safety but demands results or actions that are not commensurate with the resources available.

For Agency Administrators who do not have a fire background the examples need to be specific; e.g., describe scenarios where too few crews are ordered to build a line, or ordered to build line in unsafe circumstances, or where they were given unreasonable constraints on tactics that adversely impacted firefighter safety.

Implementation Strategy 3 – Develop refreshers or quick-help approaches for Agency Administrators.

In addition to five-day courses held at Marana, Arizona, Agency Administrators need to be able to get help quickly. Provide one-day fire management refreshers such as is used by the Oregon/Washington region of the Forest Service. Or, call in a "coach" when an Agency Administrator has a fire and does not feel confident. Or, provide "shadow assignments" where an Agency Administrator can learn or relearn how to deal with issues in fire management by observing another agency administrator or a fire manager.

Implementation Strategy 4 – Develop an attitude and ethic of professionalism that encourages retention and promotes safety behaviors.

In the months or even years in advance of any incident Agency Administrators can create a strong safety culture through a variety of tactical actions with respect to daily health and safety. When an incident occurs, it is then a small step up (as opposed to a giant leap) and the entire unit is on board with the principle of "safety first," because it has been an ongoing part of their culture. If Agency Administrators themselves demonstrate this behavior and spend time on this routinely, they will not have to "jump-start" it when an incident occurs. Goals 58 and 59, on professionalism, and Goal 82, on day-to-day safety, develop these ideas further.

Goal 50. Incident Commanders at all levels must be selected on the basis of leadership ability as well as technical competence.

Implementation Strategy 1 – Develop criteria for Incident Commanders, especially for Types 3-5.

The need to improve criteria for selecting Incident Commanders was thought to be of sufficient importance by our team and its advisory committee to merit adding this goal, which was not included in the Phase II report. It was felt that leadership ability often was considered in selecting Type 1 and 2 ICs, but much less so for Types 3 to 5. Even though Type 4 and 5 command relatively small operations, leadership of small units is important for safety, too. Red Card committees must screen candidates for leadership and decision-making ability. Further, ICs (and above) should be screened for criminal background and on psychological criteria such as used to select law enforcement officers; they are in positions of high responsibility for public safety. Legal opinion needs to be sought on defensible job-related screening criteria.

Safety Officers

Overall, 70 percent of survey respondents believed that the use of the Safety Officer position is a strength of the system, and only 5 percent felt that the Safety Officer position needed strengthening. However, some said that the present firefighting culture belittles Safety Officers because of the occasional trivialization of their role in practice: some safety officers give too much emphasis to minor hygiene issues, and not enough to safety from the fire, it was felt.

We believe that the Safety Officer position is important and can positively impact safety on the fireline. However, though the position has been in existence for a long time, the Safety Officer's role has been slow to develop its full strength and potential. The Safety Officer Position Task Book (PTB) generally seems up to par, but the Safety Officer training course is not, and is not approved by the NWCG. With the current focus on safety, the timing is right to strengthen the Safety Officer role.

Goal 51. The Safety Officer position responsibilities, priorities, and independence should be more clearly defined.

Implementation Strategy 1 – Reexamine and clarify the role and organizational placement of Safety Officers.

The agencies should re-examine the Safety Officer role and its placement under the Incident Command System. Under ICS, the Safety Officer works directly for the Incident Commander (IC) as part of his or her Command Staff. Fundamental differences of opinion exist within the agencies as to whether this arrangement is best. Some say that having the Safety Officer on the Command Staff develops an important level of trust and gives the Safety Officer more direct access to the IC and more influence on the IC's decisions. Others argue that the Safety Officer should come from outside the Incident Management Team to provide a more objective perspective, although this displays a lack of organizational trust and sets up a potential adversarial relationship between "safety inspectors" and the Incident Management Team.

A related question is the ability of Safety Officers to adequately detect and correct safety problems on the fireline where risk exposure is greatest – or whether they should even try to do so. The most effective, highest leverage way to influence safety is by not selecting a tactical option that is likely to put people in harm's way. The Safety Officer's input to command decisions is critical. However, most Safety Officers find it difficult to simultaneously discharge their Command Staff duties and also observe and influence safety on the fireline.

We recommend that the appropriate strategy is to build on the strengths of the current system, maintaining the Safety Officer position as a key member of the Command Staff but supplementing them with field Safety Officers ordered to the fire as single resources. Ideally, a field Safety Officer would be assigned to each division or group on a major fire. The field Safety Officer should be tactically savvy and trained to assist crews, Strike Team/Task Force Leaders, and Division/Group Supervisors to assess risk and implement risk controls.

Safety Officers should focus first on firefighting safety, and secondly on other safety and health issues (e.g. hygiene.) They should also be alert to symptoms of extreme fatigue and dehydration, and should interrogate a crew or division supervisor if there is any suspicion of a problem.

Safety Officers themselves must set a good example by being properly outfitted and by obeying safety rules.

A final key point: the use of Safety Officers must not diminish the responsibility of all firefighters and incident management teams for safety (as was discussed under Goal 8).

Implementation Strategy 2 – Set higher standards for Safety Officers.

After being sure what the role of the Safety Officer should be, the agencies, through the NWCG, should form a task group from the Training, Incident Operations Standards, and the Safety and Health Working Teams to review the Position Task Book, training materials, and training and experience requirements for the Safety Officer position, revising them as needed. The result of this task group's work should be to establish training and certification requirements for Safety Officers that give more emphasis to firefighter safety.

At a minimum, the resulting program should:

- Establish a corps of Safety Officers who are physically able (moderate fitness level) and willing to work on the fireline, where they can directly observe and influence the safety of firefighters and fireline Incident Management Team.

- Require a rigorous training and experience regimen that includes prerequisite training and performance in key command and operations positions such as IC Type 4 and Division/Group Supervisor.

- Require successful completion of a Safety Officer course that has been thoroughly evaluated and approved by the NWCG.

To be most effective, Safety Officers must not be looked down upon in the culture as people who have been put out to pasture. The higher standards and reinforced focus of Safety Officers on fireline safety should help restore the status of the Safety Officer position.

Goal 52. For extended attack (and larger) fires, someone needs to monitor operations to ensure compliance with established safety requirements, procedures, policies, and standards.

Implementation Strategy 1– Re-enforce the concept that everyone is responsible for monitoring safety.

Some people suggested that trained Safety Officers should be automatically assigned to extended attack incidents. We believe that the first principle should be to strengthen the safety awareness of everyone in their organizations, not reflexively depend on Safety Officers. This approach will ultimately have more impact and lasting change on the culture than relying on Safety Officers to "inspect in" safety. By carrying out the goals and strategies outlined in this report, the agencies should find little need to formally assign trained safety Officers to the smaller fires.

Implementation Strategy 2 – Assign someone ad hoc to monitor safety during transitions when no Safety Officer is present.

As mentioned earlier, expert firefighters interviewed during this study recognize initial and extended attack as the riskiest of fire operation environments. Many firefighters we surveyed share a strong perception that they face greater risk while fighting small fires that are growing and transitioning to larger operations than they do on large fires that are continuing to grow. The transition can be especially dangerous because not only is the fire situation becoming more complex, but the command function changes from "fire fighting" to managing an emergency situation.

The agencies should require Initial Attack and Extended Attack Incident Commanders to designate a very experienced (perhaps the most experienced) person on their fire as an ad hoc Safety Officer to monitor safety during transition periods. (We do not think that a trained Safety Officer is needed, and the officer would likely arrive too late to observe the transition in many cases.) This strategy should be implemented in concert with the implementation strategies for Goal 35, which dealt with safety during transitions.

Appropriate Use of Various Crew Types

In Phase I we discovered a great deal of concern at all organizational levels over the appropriate use of Type II crews, including contractors, the military, inmate crews, and Emergency Firefighters (EFFs). Of even more concern was the inappropriate use of local

volunteer and career fire departments that do not have adequate training or equipment for wildland firefighting.

Because they often are not aware of a resource's capability (or lack of capability), Incident Commanders and other fireline management sometimes assign crews and other resources inappropriately. This lack of awareness often results because the person assigning the resource is not given information about crew capability and fails to ask about it, or the supervisor is not forthcoming about the unit's experience, capability, fatigue level, or other characteristics.

The general principle must be that Incident Commanders and others making resource deployment decisions understand the capability of crews and other resources at their disposal in terms of competency and condition, and give them appropriate assignments.

Resource Typing – The current resource typing system is helpful, but is based on administrative considerations and not capability. It does not give enough information to facilitate effective deployment decisions. Fire managers we interviewed pointed out the wide range of competency within the Type II crew classification. A Type II crew may be 20 agency employees with extensive fireline experience, equivalent to a Type I crew, or 20 EFFs, hired through an employment service, given minimal training, having no fire experience, and qualified for not much more than mop-up assignments.

While Type I crews also have a range of capabilities, it tends to be narrower because they consist of people with at least a year of fire experience, and they work and train together. The typing system provided for three tiers of crew designation prior to the institution of the ICS in the 1980s, and many managers have commented that they found that system to be more useful.

To make assessing capability even more complex, Type II crews often do not remain as cohesive units throughout a season. Their make-up, and hence their experience and competency, can vary from dispatch to dispatch. In addition, fatigue, particularly the cumulative fatigue of long assignments, multiple assignments or an active fire season, can radically alter the capability of any crew, regardless of type.

To positively impact safety, resource classifications must be useful to those making tactical assignments based on the complexity and physical challenge of the assignments. A useful classification system ideally would provide information about training, experience, physical conditioning, and recent work history (in terms of hours worked, weeks worked, travel time, mode of transportation to the site, level of fatigue, morale, and perhaps even other factors

such as cohesiveness). Incident Management Team members routinely try to determine this information before making assignments, but the current system does not efficiently provide the information.

When war gaming, the military often uses a rating of a unit's "morale" or "capability" that reflects its recent success in combat, fatigue level, supply level, casualties, original training and equipment, and its leadership.[23] Something similar might be considered for rating a fire crew, perhaps providing a point system reflecting the crew's training, physical fitness and equipment, and how that changes over a season. This rating would determine a sub-type within the overall type, especially for Type II crews. Even if approximately right, it would help in making assignments.

Goal 53. A method is needed to rate the capability (competency and condition) of a crew.

Implementation Strategy 1– Use a crew classification system of three or more levels.

The agencies (through the auspices of the NWCG) should return to a resource typing system that allows for at least three crew classifications. The criteria for those classifications would be based primarily on crew organization, training, and equipment.[24] The criteria must be well known and consistently applied.

Implementation Strategy 2 – Consider sub-types within a type of crew, especially for Type II crews.

The agencies should consider establishing "sub-typings" or ratings within a crew type to reflect the capability and fatigue level of a crew. This method would enable Incident Management Teams and ICs to make informed deployment decisions based on the crew's make-up (experience), the experience of the crew leadership and the physical condition/fatigue of the members. A crew's sub-type might well change over the season, as different people are dispatched and as its fatigue level changes.

[23] Computer simulations of military units almost always include similar factors – even those sold as games today.
[24] Some feel that the criteria should include physical fitness, which can translate into how much work a crew can be assigned if it is in first-rate shape versus just passing minimum standards. However, there legally cannot be different physical standards for different types of crews. Whether their condition can be described if they themselves choose to meet a higher standard (e.g., a Hotshot crew) seems to be an arguable point.

For example, Ronan 10 might be dispatched as a Type II-a crew, with 20 fresh firefighters all with two or more seasons of experience and an experienced Crew Supervisor on his 25th assignment. Later that year, the same Crew Supervisor might take out Ronan 25 as a Type II-c crew, with two squad bosses who have moved up from the ranks during the season, and 5 new firefighters who have just completed training. In addition, they've been out for 10 days and several crew members are sick.

Criteria for establishing sub-typing (a, b, c) might be based on an additive points system, or a system that uses a multiplier that can be greater or less than one for each attribute, and would be applied to the base rating of the crew (Type I, II, or III). For example, a crew out one week would be 1.0, at two weeks .9, and at three weeks .75 times its base rating.

Another alternative is to rate a crew's health and fatigue level separately from its training and experience level.

The crew leader would calculate and provide the crew's score or sub-typing when checking-in. An alternative would be for the Crew Supervisor to fill out a short "form" on a computer or computer-readable media, and have the computer compute the team's rating. Either way, the score would be recorded for the benefit of the Incident Management Team. A high-end Type II crew might be used for assignments like a Type I crew or to work with Type I crews. A low end Type II crew might only be used for mop up or for less taxing assignments.

Implementation Strategy 3 – Consider developing a smart "resource status card" for fast check-ins.

The agencies should consider using a "resource status card" to facilitate the check-in process and provide information to improve resource assignment decisions by the Incident Management Team. This strategy should be implemented in concert with Implementation Strategy 3 of Goal 18 (developing smart Red Cards), and utilize the same "smart card" approach to supporting a computer-based resource tracking function. Like Red Cards, "resource cards" would still need to include visually readable information and a manual resource tracking function to enable ICs and Incident Management Teams to review credentials and track resources at remote fires without electric power, on the fireline, or during equipment failures.

An effective resource card might contain the following (which would easily fit on a 64K computer chip smart card):

Name of Resource:_____ Type of Resource:_____
Home Unit:_____ Home Supervisor Phone:_____
Name of Superintendent:_____ Qualifications:_____
Name of Foreman or Crew Supervisor:_____ Qualifications:_____
Crew Size:_____
Number of Saws:_____
Unique Skills or Equipment:_____
Type of transportation:_____
Number of Radios:_____ Field Programmable?_____
Crew Net Radio Frequency:_____
Number of Days Out:_____ As Of (Today's Date):_____
Fatigue Level:_____(rested, worked, fatigued, long travel)
Health Level:_____(excellent, good, fair, poor)

Goal 54. The condition and competency of crews needs to be considered when making assignments.

Implementation Strategy 1 – Require those who make crew assignments to consider the status as well as type of each crew (and other resources).

It would be easier to take the crew's competency and condition into account if there was a satisfactory method for rating the crews as discussed in the previous goal. However, whether or not a revised rating system is developed, incident managers must consider the condition and quality of a crew or other resources when making tactical assignments. Unlike a military situation, where leadership sometimes must use a less than acceptable unit to do a job, civilian firefighting may have to occasionally not get the job done rather than put a crew in over their head.

Goal 55. Crew Supervisors must accurately report the status and competency of their crews.

Goal 56. The equipment of crews should be reviewed and taken into consideration when giving them assignments.

Implementation Strategy 1 – Require Crew Supervisors to accurately describe the status of their crew at check-in. (The same applies to other resources.)

No one knows the capability, condition, and morale of a unit better than the unit's supervisor. Good information from the supervisor is critical in making informed decisions about their assignment. The current check in the system does not require mentioning of a unit's condition. We think it should be part of a supervisor's duty to describe the status of the unit upon check-in. The same applies for a single resource (for oneself). Dishonesty in reporting status should be considered a serious offense. If any injuries occur on a unit that was inappropriately assigned, the supervisor and person making the assignment should be reviewed and action taken if necessary.

Implementation Strategy 2 – Require Crew Supervisors to describe any equipment problems at check-in. (The same applies to other resources.)

The basic idea is the same as in Strategy 1. Of particular importance is to describe the number of radios and any deficiencies in radios or protective equipment (e.g. missing batteries, radios, shelters, hardhats and gloves or non-standard protective clothing).

Further Improve Intergovernmental Cooperation

Nationally, all three levels of government (Federal, state, and local) are taking responsibility for wildland fires. The growing threat of catastrophic fire in the urban/wildland interface adds to the need for interagency cooperation, and the Federal agencies are interacting with and relying on the firefighting forces of state and local government like never before.

The National Wildfire Coordinating Group (NWCG) has very successfully integrated state and Federal efforts at the national level. The NWCG endeavors to design and coordinate programs of the participating agencies to avoid wasteful duplication and provide a means of

constructively working together.[25] The current membership of NWCG includes two representatives from the Forest Service, one each from the Fish and Wildlife Service, National Park Service, the Bureau of Indian Affairs, and the Bureau of Land Management; two state representatives, one representing Eastern states and the other Western states (through the National Association of State Foresters); and a representative of the U.S. Fire Administration.

The National Fire Protection Association participates as an Associate Member without voting privileges. The Executive Secretary of NWCG is an employee of NASF, and is not a voting member of NWCG.

The NWCG's importance in integrating agency fire management efforts is apparent by the number of references to the NWCG and its working teams in this report. However, despite many successes at the national level, interagency coordination efforts produce variable results at the state and local level. Most Federal, state and local agencies work together well. However, in some cases, cooperation and communication is poor, exposing firefighters to potential safety problems though uncoordinated effort and separate approaches to safe practices.

As they downsize, Federal agencies often are reducing their local presence and fire management and suppression capabilities. Consequently, they are more dependent on assistance from state and local government cooperators. However, many state agencies are going through budget crises of their own and reducing their capabilities. Increasingly, state cooperators view their partnerships with Federal agencies as being unequal arrangements in which the state agencies carry too much of the load. Ironically, state agencies in turn, are relying more and more on local governments for assistance. Wildland fire, and especially the urban/wildland interface, is a rapidly growing local government concern in many areas.[26]

Unfortunately, local fire departments face constraints of their own. For example, most rural communities depend on volunteer firefighters. The number of volunteers has been decreasing nationally and some would characterize firefighter recruitment and retention as a national crisis for volunteer fire departments.[27] In addition, local governments have certainly not escaped budget pressures, downsizing and consolidation.

---

[25] NWCG, Wildland/Urban Interface Fire Protection Program, Developing a Cooperative Approach to Wildfire Protection, 1997.
[26] For a detailed discussion of this issue in one state, see Fire Program Review, State of Washington Department of Natural Resources, by TriData Corporation, 1997.
[27] See Volunteer Recruiting and Retention, Issues and Solutions, Final Report, National Volunteer Fire Council and U.S. Fire Administration, 1998.

Consequently, as all levels of government reduce firefighting resources, or do not increase resources to meet demand, resources are short, not only for coordinated and safe initial and extended attack, but to support adequate local, regional and national mobilization.

To maintain or improve safety in the face of this issue, the agencies will need to enter a new era of interagency cooperation. This will require fundamental cultural change that embraces interagency relationships at all levels of government and instills safety consciousness in all interagency efforts.

Goal 57. Further improve Federal-state-local interagency coordination.

Implementation Strategy 1 – Expand official or ex-officio representation of local fire agencies on the NWCG.

Currently, local governments are represented in Federal wildland fire policy decisions through their state representatives, NFPA, and the USFA representative on the NWCG Board. As Federal agencies downsize, they are relying more on the states. As states downsize, they are relying more on local government, and local government has no direct representation on the NWCG.

The NWCG receives policy input in the form of various agencies positions at the national level. The NWCG representatives reconcile the agency positions, resolve differences and recommend policy and standards policy through consensus at a national, interagency level. However, these policy decisions must be implemented regionally and locally and at the operational level of member agencies.

Effective interagency cooperation at the national level sometimes has little effect in the field, where policy must become action locally to produce the desired effect. The same is true of decisions made by Geographic Area Coordinating Groups (GACGs), who often find their initiatives thwarted by the people expected to implement them. It would be useful (and reduce resistance) to involve local and regional personnel in policy decisions from the outset. There is already an attempt to do this in the GACGs, in some more than others.

The NWCG should make sure that representatives of local governments are consulted on issues pertinent to them. The NWCG should consider adding representatives from some or all of

the following organizations to get further representatives of the views of different types of localities, and of state and defensive agencies:

- **International Association of Fire Chiefs (IAFC)**

The IAFC mission is "To provide leadership to career and volunteer chiefs, chief fire officers and managers of Emergency Services Organizations throughout the international community through vision, information, education, services and representation to enhance their professionalism and capabilities." The IAFC monitors Federal legislation and regulations that affect the fire and emergency medical services, provides information, increases awareness, and enhances understanding of government laws and regulations; represents members' interests in congress; serves as liaison with other fire service organizations to form political coalitions on fire service issues.[28]

- **National Association of Counties (NACo)**

According to NACo, it is the only national organization that represents county governments. They provide legislative, research, technical and public affairs assistance to its members. The association acts as a liaison with other levels of government, works to improve public understanding of counties, serves as a national advocate for counties, and provides them with resources to help them find innovative methods to meet the challenges they face. [29]

- **National Volunteer Fire Council (NVFC)**

The NVFC mission is to "represent the volunteer fire and emergency medical services in national legislative, regulatory and standards making matters; provide a national voice for the volunteer fire and EMS service; promote the welfare of the volunteer fire and EMS service."

The NVFC's stated purpose is to "...formulate and promulgate programs useful to the fire/emergency services of the United States; to represent the interests of the member state fire/emergency organizations in the Congress of the United States and with various Federal agencies involved with the preservation of life and property; and to do all other things designed to better preserve the lives and property of the citizens of the United States ..."

---

[28] From the IAFC Internet Homepage.
[29] From the NACo Internet Homepage.

The NVFC considers itself the volunteer fire service's representative in the national policy arena, and on numerous national and international committees and organizations.[30] Since much concern about volunteer safety was raised in this study, they are of special interest.

- **National Association of State Fire Marshals (NASFM)**

The NASFM's mission is "...to foster, promote, and develop ways and means of protecting life and property through the exchange and interchange of fire protection and life safety concepts at a state and national level. They consider it their purpose to act for the mutual benefit of state officials engaged primarily in fire prevention and safety from fire. In addition, NASFM's purpose is to promote fire protection programs and activities among the various states, the Federal government, the fire service, codes and standards bodies, private groups and other organizations. NASFM accomplishes this by discussing, developing, sponsoring, and promoting legislation, programs, publications, and activities that will enhance fire prevention and safety from fire.[31]

The NASFM is currently addressing issues that have cascaded from the urban/wildand interface issue, including codes and other aspects of prevention, data, and mobilization related topics. The degree to which the State Fire Marshals affect wildland fire policy or operation varies dramatically from state to state. Current NWCG representatives are well aware of state fire programs, but need to assure there is tie-in to NASFM's efforts either at the level of state representatives to NWCG, or through NASFM directly.

- **Department of Defense**

They are a major land management agency with extensive wildland fires, and also provide crews and other resources to Federal wildland firefighters, both on and off military bases.

[30] From the NVFC Internet Homepage.
[31] From the NASFM Internet Homepage.

Implementation Strategy 2 – Further develop coordination with "GACGs."

Nine Geographic Area Coordinating Groups (GACGs) provide the foundation of interagency efforts at the regional (multi-state) level. Each GACG has a charter with a core of elements shared in common with other GACGs and some unique elements for their own circumstances. For example, the Northern Rockies Coordinating Group (NRCG) mission statement is "To further interagency cooperation, communications, and coordination, and to provide interagency fire management direction to the Northern Rockies." The NRCG considers its functions to include:

- Operating at a strategic/oversight level
- Encouraging cooperation across jurisdictional and administrative boundaries
- Encouraging and fostering interagency fire business management practices
- Overseeing fire health and safety issues
- Providing interagency direction to field units
- Coordinating agency direction with other members
- Providing a group response to agency specific requests with interagency implications

From this example, the link between the GACGs and the NWCG is clear. However, the GACGs are independent groups, chartered by their local agencies and the local administrative units of Federal agencies. The NWCG implements its direction back through individual agencies or by voluntary cooperation of the GACGs. The NWCG and the GACGs are working to strengthen their relationship, particularly in the area of policy formulation. They are also working toward a common purpose, and have recently agreed to the minimum, common components of a GACG charter.

The agencies should further unify the purposes of the NWCG and GACGs and implement NWCG policy and decisions through the interagency groups established in each region. The GACGs, in our opinion, should be the regional level of the NWCG. This unification should be part of a comprehensive strategy to reorganize and vitalize interagency cooperation from the national policy level to the individual firefighter level.

Some GACGs have further organized their geographic areas into geographic "zones" to work on specific tasks and issues. They help provide local mobilization and dispatch on an interagency basis – part of a three-tier dispatch system called for in the Incident Management Review Team (IMRT) report. Decisions are made and information flows through the geographic

zone rather than through individual agencies on issues with interagency ramifications. We believe that this concept provides a key element of a comprehensive strategy to reorganize national interagency cooperation.

Currently, the NWCG and representatives of the GACGs meet, at most, annually. GACG representatives are not required to attend NWCG meetings, nor are NWCG representatives expected to attend GACG meetings. Regardless of the ultimate NWCG/GACG relationship and structure, the NWCG and GACG representatives should meet together at least semi-annually. Attendance should be mandatory and subsidized to ensure that both NWCG and GACG leadership is not limited only to certain agencies.[32] We believe that this course of action represents a fundamental change, one that is important to make, and an element of a comprehensive strategy to reorganize national interagency cooperation.

Implementation Strategy 3 – Ultimately develop a nested set of interagency organizations.

In the long range, a comprehensive strategic plan should be developed to reorganize national interagency cooperation from the national policy level to the field unit level. An effective strategic vision might include:

- The NWCG representing a single, national body to further interagency cooperation, communications and coordination, and provide interagency wildland and urban/wildland interface fire management direction for the United States.
- Geographic Area Zone Coordinating Groups (GACGs) that
  - Participate in NWCG policy making efforts and decision-making
  - Establish cooperation across boundaries
  - Provide interagency direction for field units and perform oversight
  - Coordinate interagency direction for field units.
- Zone organizations forming the essential building block of interagency coordination and:
  - Participating in NWCG policy formation and decision-making
  - Determining training and operational needs at the local level

[32] There are divergent views on how good the current attendance is. All GACGs should be represented at each meeting.

- Implementing NWCG policies and decisions
- Coordinating their efforts among interagency partners
- Maintaining strong working relationships between the units of local, state, and Federal agencies

The trend has been toward developing such a tiered system. We encourage further progress be made in that direction.

Summary

This chapter on leadership discussed fire management policy, appropriate use of various types of crews, strategy and tactics issues, leadership, experience, and competence, use of Safety Officers, intergovernmental coordination. These leadership issues also affect the organizational culture issues discussed in the preceding chapter and the human factors issues discussed in the next chapter.